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The Trend of Vanishing Tech Jobs

By VIRGINIA POSTREL

MANY American computer programmers complain that they're losing their jobs to lower-paid workers in India. The trend toward foreign "outsourcing" has become a political flashpoint.

But the trend is less frightening and more promising than you'd think from either the angry talk from unemployed programmers or the scary estimates from consulting firms, argues Catherine L. Mann, an economist at the Institute for International Economics in Washington.

First, the end of the technology boom, the general economic slump, and the downturn in manufacturing - not foreign programming competition - account for most job losses. Most estimates, Dr. Mann notes, compare the peak of the business cycle and technology boom with today's sluggish economy. That's not a valid comparison.

Compared with the end of 1999, which was still a good time for programmers, December 2003 data show a 14 percent increase in business and financial occupations, a 6 percent increase in computer and mathematical jobs, and a 2 percent drop in architecture and engineering jobs. New programming jobs may be springing up in India, but they aren't canceling out job growth in the United States.

The problem for white-collar professionals, as for line workers, is that manufacturing is still in a slump. "When the production floor doesn't produce any more, the people in the window offices around the building also start to lose their jobs," Dr. Mann says.

Over the long run, she argues, the globalization of software and computer services will enhance American productivity growth and create new higher-value, higher-paid technical jobs.

What's happening now to software and services has already happened to hardware, with great economic results.

In the late 1980's, Asian manufacturers began turning out basic memory chips, undercutting American chip makers' prices and inciting a fierce policy debate. Many industry leaders argued that the United States would lose its technological edge unless the government intervened to protect chip makers.

In a famous 1988 Harvard Business Review article, Charles Ferguson, then a postdoctoral associate at the Center for Technology Policy and Industrial Development at M.I.T., summed up the conventional wisdom: "Most experts believe that without deep changes in both industry behavior and government policy, U.S. microelectronics will be reduced to permanent, decisive inferiority within 10 years."

He denounced the "fragmented, chronically entrepreneurial industry" of Silicon Valley, which was losing market share to government-aided Asian businesses. "Only economists moved by the invisible hand," he wrote, "have failed to apprehend the problem."

Those optimistic economists were right. The dire predictions were wrong. American semiconductor makers shifted to higher-value microprocessors. Computer companies bought commodity memory chips and other components, from keyboards to disk drives, abroad. Businesses and consumers enjoyed cheaper and cheaper prices.

Far from an economic disaster, the result was a productivity boom. As global manufacturing helped to reduce the price of information technology sharply, all sorts of businesses, from banks to retailers, found new, more productive ways to use the technology.

"Globalized production and international trade made I.T. hardware some 10 to 30 percent less expensive than it otherwise would have been," Dr. Mann estimates in an institute policy brief. (Her paper, "Globalization of I.T. Services and White-Collar Jobs: The Next Wave of Productivity Growth," can be downloaded at iie.com.)

As a result, she estimates, gross domestic product grew about 0.3 percentage point a year faster than it would have otherwise, adding up to $230 billion over the seven years from 1995 to 2002. "That's real money," she said in an interview.

By building the components for new integrated software systems inexpensively, offshore programmers could make information technology affordable to business sectors that haven't yet joined the productivity boom: small and medium-size businesses, health care and construction.

"Bringing those sectors up to at least the average will raise U.S. G.D.P. growth again," Dr. Mann notes. "And that's the second wave of productivity growth."

In addition to the economic benefits, she argues that improved information management could significantly improve health care, reducing paperwork and guarding against treatment mistakes like dangerous drug interactions.

That doesn't mean your health records will be in India, however. To the contrary, the health care system is probably too convoluted for someone far away to understand.

Rather, like hardware, software can be divided into components, basic building blocks of integrated systems. While those components may be developed abroad, integrating them into a useful system requires more specific knowledge of the client organization or its legal environment.

As with putting together hardware, building software systems is likely to happen locally. There will be less demand for basic programming and more demand for higher-value, higher-paid systems integration.

These projections aren't much comfort, of course, to unemployed programmers. While their skills may be in demand, Dr. Mann explains, those jobs may be in new industries - a hospital, for instance, rather than at I.B.M. - and therefore be harder to find. Or programmers may need new training to move into systems integration jobs.

To encourage companies to invest in such training, Dr. Mann argues for a "human capital investment tax credit," similar to the credit for investing in physical equipment. She also believes that the federal aid given to displaced manufacturing workers should be extended to cover information industries. And she suggests that information technology itself may help with job searches, crossing the old boundaries of classified ads.

But, she argues, acknowledging individual hardships shouldn't detract from the bigger picture.

"There is no question that the downside anecdote - the well-trained person losing their job - is a story that people identify with," Dr. Mann says. "They simply don't identify with the story of the person who changed their job and does three times better."

"Most of the stories are about downside loss, not about upside gain," she adds, "and there is a lot of upside gain."

Virginia Postrel is the author of "The Substance of Style: How the Rise of Aesthetic Value Is Remaking Commerce, Culture and Consciousness," published by HarperCollins.